

Primary magma of rocks of Chegem caldera structure (the Northern Caucasus)

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Chegem caldera complex had been formed at very short period $((2.83-2.84) \pm 0.2 \text{ mln. years})$, as a result of tuff explosions (400 km^3) and deep subsidence over the near-surface magmatic chamber. Combination of volcanic and plutonic rocks on comparatively limited territory of the caldera testifies their formation from single magmatic focus.

Petrologic-geochemical and isotopic researches allowed supposing that intracaldera and outflow tuffs and granite porphyres of the resurgent dome of Chegem caldera had been formed as a result of anatexis melting of continental crust by the thermal energy of basic melt and subsequent crystallization differentiation of the formed melt. The initial melt generated at 18-20 km depths, then rising into the near-surface chamber, it crystallized with formation of differentiates of dacite-rhyodacite-rhyolitic series (according to thermobarometry data: $T=1100-1150^\circ\text{C}$ and $p=6 \text{ kbar}$). Postcaldera andesites are hybrid ones and had been formed as a result of mixing residual rhyolitic and basic magma.

Melted inclusions in the plagioclase and orthorhombic pyroxene (from andesite) and in the plagioclase and quartz (all the rest rocks) have been studied by method of experimental thermobarogeochemistry. Homogenous inclusions in all studied rocks (from rhyolite to andesite) have rhyolitic composition. Temperature of homogenization of the inclusions is $1120-1150^\circ\text{C}$, it proves the above-mentioned supposition of possible origin of Chegem caldera rocks.